

Fig. 1A

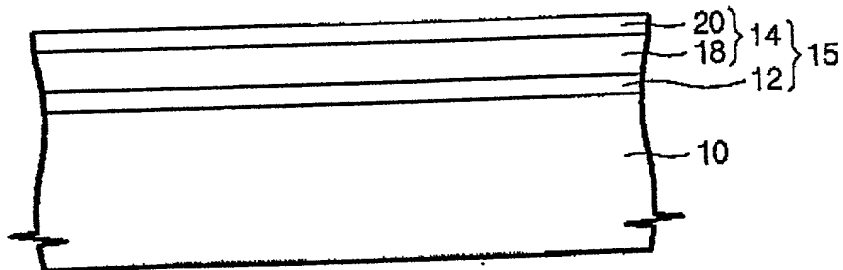


Fig. 1B

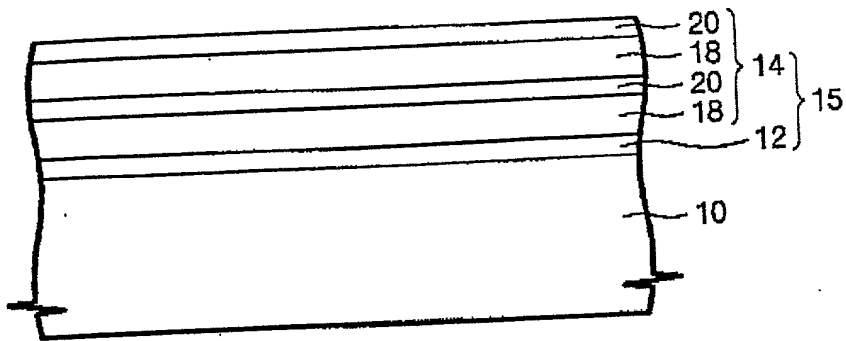


Fig. 1C

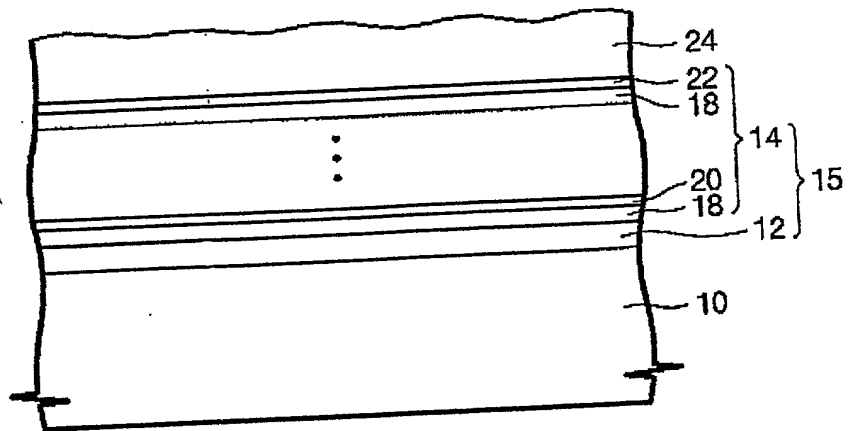
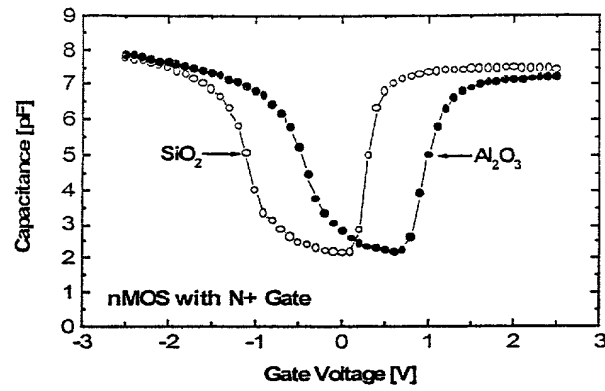
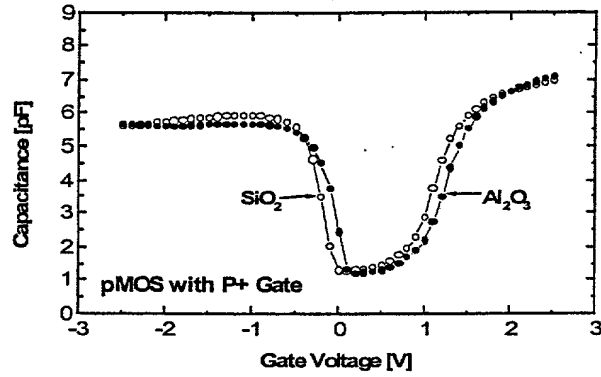


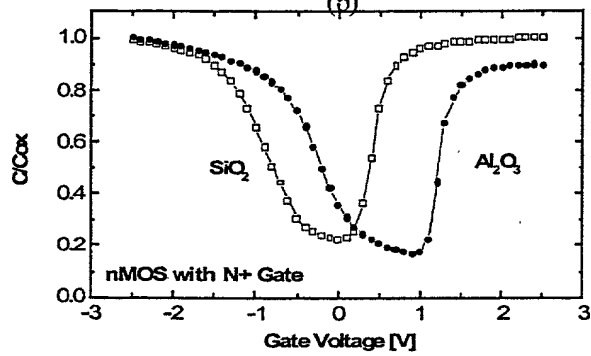
Fig. 2



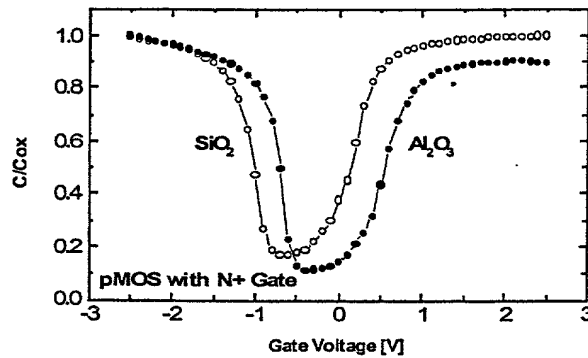
(a)



(b)



(c)

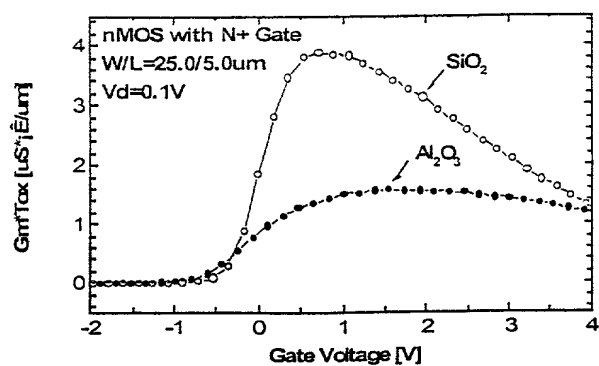


(d)

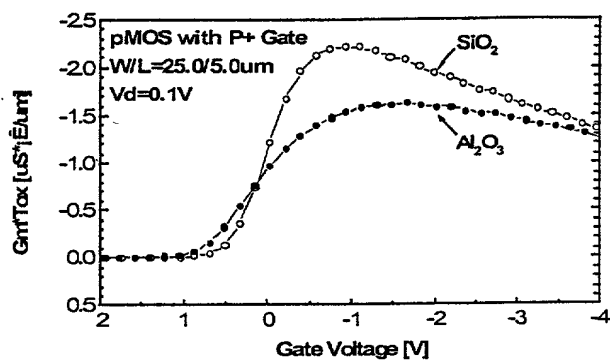
#### $\text{Al}_2\text{O}_3$ MOS Capacitor C-V Curves

- (a) n+Poly-Si/  $\text{Al}_2\text{O}_3$  or  $\text{SiO}_2$ / p-Si (b) p+Poly-Si/  
 $\text{Al}_2\text{O}_3$  or  $\text{SiO}_2$ / n-Si (c) n+Poly-Si/  $\text{Al}_2\text{O}_3$  or  
 $\text{SiO}_2$ / p-Si (d) n+Poly-Si/  $\text{Al}_2\text{O}_3$  or  $\text{SiO}_2$ / n-Si

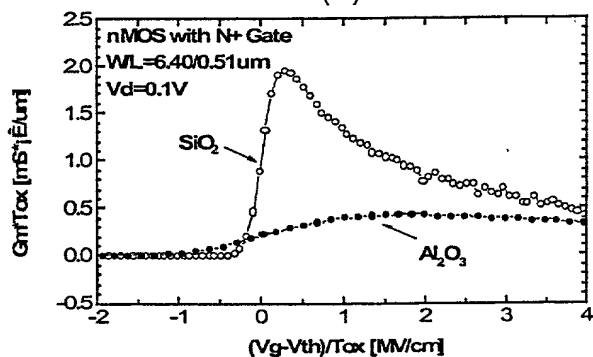
FIG. 3



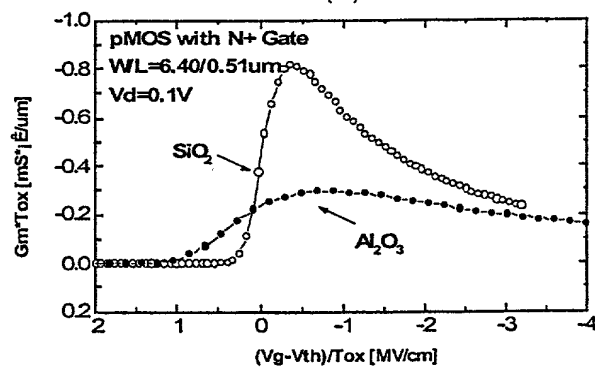
(a)



(b)



(c)



(d)

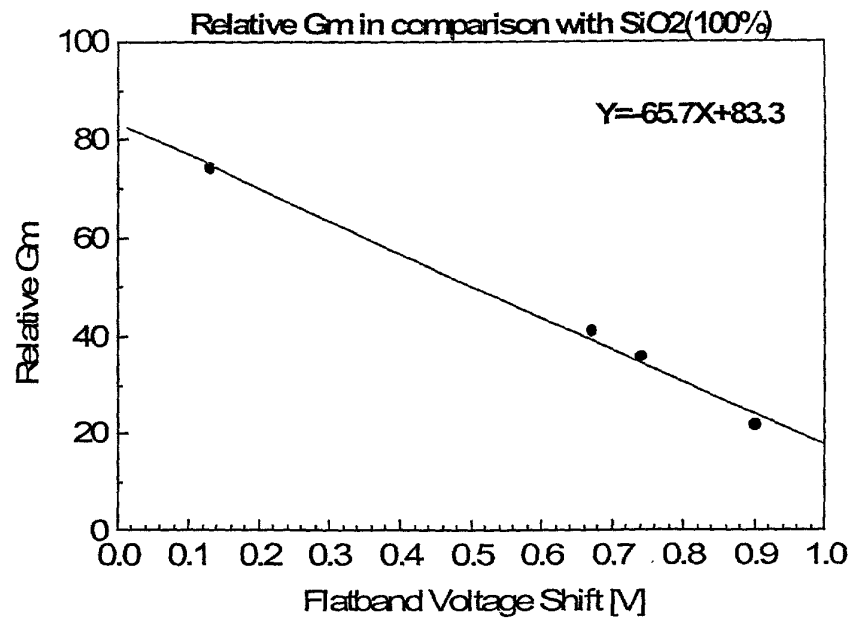
Gm(Normalized Transconductance) vs. Vg

(a) N+Gate nMOS (b) P+Gate pMOS

(c) In-situ Doped N+Gate nMOS

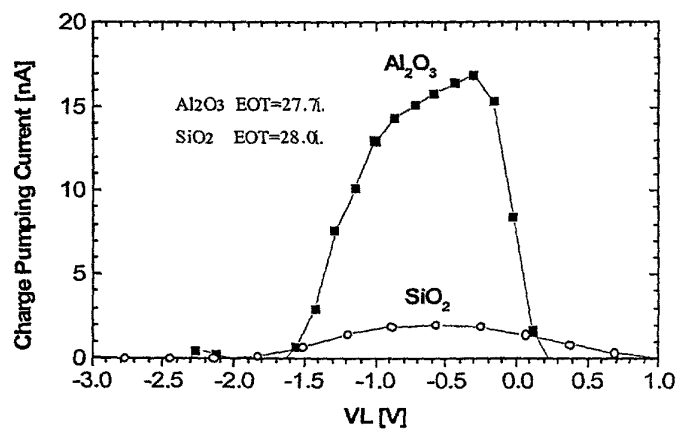
(d) In-situ Doped N+Gate pMOS

FIG. 4



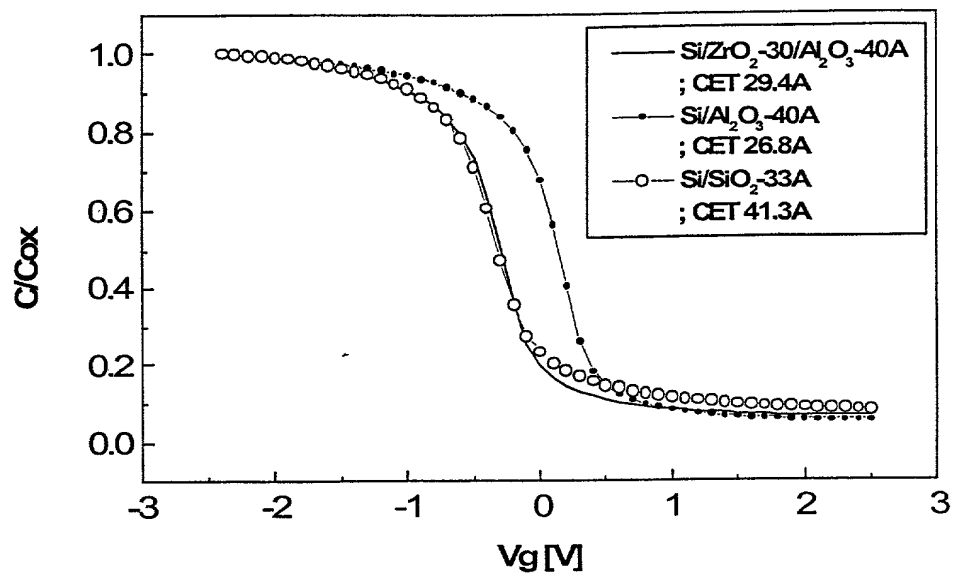
Flatband Voltage Shift vs. Relative Gm of Al<sub>2</sub>O<sub>3</sub> to SiO<sub>2</sub>

FIG. 5



Gate Base Level VL vs. Charge Pumping Current I<sub>cp</sub>

FIG. 6



C-V Curve of  $\text{ZrO}_2/\text{Al}_2\text{O}_3$  Stack layer

FIG. 7